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Applicant (Actual Inventor) JOHN ROWLEY NICHOLSON.
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Drawing attached.

COMPLETE SPECIFICATION.

"Improvements in and connected with sliding sash windows provided with flywire screens."

I, JOHN ROWLEY NICHOLSON, Engineer, of 30 Little Lonsdon Street, North Melbourne, in the State of Victoria, Commonwealth of Australia, hereby declare this invention and the manner in which it is to be performed to be fully described and ascertained in and by the following statement:—

This invention relates to improvements in and connected with sliding sash windows provided with flywire screens, and refers especially to windows having one or more vertically slidable sashes, though it is applicable also to windows having horizontally slidable sashes.

It has heretofore been proposed to attach the free end of a flywire screen which is wound on a spring actuated roller to a slidable sash in such a manner that, when the sash is moved clear of a portion of the window opening, the screen will automatically i.e. unwound from the roller to extend across such portion of the opening and so prevent ingress of insects.

Now, the object of the present invention is to provide improvements in the construction of windows of this known type.

One feature of the invention resides in a window comprising a frame provided with at least two glazed sashes arranged in different planes, one at least of said sashes being slidable whereby it may be moved behind or in front of the other sash, and a flexible screen of flywire or the like mounted on a self-winding roller and connected to one end of the slidable sash and characterised in that the edges of the flexible screen are received in guide grooves disposed parallel to the sashes and arranged in a plane located intermediate the plane of the inner face of the inner sash and the plane of the outer face of the outer sash.

Another feature of the invention resides in a window having a frame provided with a slidable sash arranged between inner and outer guides and having a flexible screen attached to one end thereof, said screen being mounted on a self-winding roller and characterised in that the edges of the flexible screen are received in guide grooves disposed parallel to and located between the said inner and outer guides for the slidable sash.

The said roller is rotatively mounted on or adjacent the window frame and in one preferred embodiment said roller is arranged below the window sill and the screen extends upwardly therefrom through a slot in the sill. Alternatively the roller may be arranged in a housing secured to the top of the sill.

In the drawings, which show practical embodiments of the invention:—

Figure 1 is a view in perspective partly in section of a sliding sash window having the lower sash connected to a flexible screen in accordance with the invention.

Figure 2 is a view in sectional end elevation of the sill and adjacent parts of the window shown in Figure 1, and is drawn to a larger scale, the sash in this figure being shown in its lowermost position.

Figure 3 is a view in sectional plan taken on a plane corresponding to that indicated by the line 3—3 of Figure 2, it being assumed that the lower sash is wholly above such plane.

Figure 4 is a view in sectional end elevation and shows the sill and adjacent parts of a sliding sash window of modified construction.

Figure 5 is a view in sectional elevation taken on the line 5—5 of Figure 4, parts of the roller screen being shown as broken away.

Figures 6 and 7 are views in sectional plan showing window frame side members of modified construction; and

Figure 8 is a view in end elevation of the construction shown in Figure 7.

The window shown in Figures 1, 2 and 3 is generally of conventional construction and comprises upper and lower sashes 10 and 11 respectively slidably mounted in guide grooves formed in the side members 12 of the window frame, such guide grooves being separated by parting beads 13. The sashes are counter-balanced in the usual way by weights which are not shown.

The lower rail 11¹ of the sash 11 is provided in its under-surface with a longitudinally disposed groove 11² in which the upper reinforced end of a flexible screen 15 of flywire or other suitable material is detachably secured as by screws 14. This screen extends vertically downwards from the sash through a longitudinal slot 16¹ in the sill 16 to a self-winding spring roller 17 on which the major part of the screen is normally wound, the roller being housed in a box 18 of sheet metal arranged below the sill. The roller is of the type commonly used for window blinds except that same is not provided with ratchet or other retaining means and the axles at the ends thereof are fitted to brackets (not shown) secured to the inner ends of the box 18.

The bottom of the box slopes outwardly as shown in Figures 1 and 2 and also longitudinally so that any water which may enter said box will be directed into a discharge spout 19 (Figure 1).

The front of the box 18 is open apart from a lip or flange 18¹ which is turned up from the bottom and this open front is normally closed by a detachable cover 20 which, when removed, permits of access to the roller.

An angle shaped metal strip 21 is fitted to the top of the sill and same has an upstanding flange 21¹ which is flush with the front edge of the slot 16¹ in the sill, such upstanding flange being received in the groove 11² in the sash 10 when the latter is lowered (see Figure 2). Thus ingress of rainwater to the roller box 18 is prevented when the sash is lowered.

The side edges of the flexible screen 15 are received in corresponding vertical guide grooves 15² formed between spaced angle shaped metal strips 22 secured to the respective side members 12 of the frame within the guide grooves for the sash 11 (see Figures 1 and 3) the outer edges of the stiles of the sash being provided with clearance grooves 11³ for the angle strips 22 (see broken lines in Figure 3).

In the illustrated embodiment the upper sash 10 is not fitted with a flexible flywire screen but, if required, such a screen could be provided and arranged substantially as described except that the roller therefor would be located within the window head.

Thus the plane of the unwound portion of the screen is disposed intermediate the plane 30 of the inner face of the inner sash 11 and the plane of the outer face of the outer sash 10. The construction therefore is neat and compact and the said intermediate position of the unwound portion of the screen affords some protection against accidental damage. Furthermore the construction is comparatively simple to manufacture and relatively inexpensive while the screen and the roller may readily be removed if required for replacement or repairs.

In the modified construction shown in Figures 4 and 5, the roller box 18 is mounted on top of the window sill 16 instead of therebelow, the top of said box being formed with a longitudinal slot through which the screen 15 extends. This construction has the advantage that it is more readily applicable to many existing windows, the height of the sash 11 being suitably reduced. The roller box in this construction may fit neatly between the side members 12 of the window frame and, in order that the length of the roller 17 and consequently the width of the screen may be only slightly less than the width of the sash, the ends of the roller are recessed to accommodate axle supporting brackets which

project inwardly from the ends of the box 18 one at least of said ends being detachable (Figure 5).

As shown in the Figure, the outer edge of 5 the slot in the box 18 is defined by an upstanding flange 18¹ receivable in a groove in the bottom of the slidable sash.

Figure 6 is a sectional plan view showing one side member 12 of a metal frame window 10 in accordance with the invention. These side members are formed of sheet metal and are provided in the sash grooves with vertical guide grooves 22¹ to receive the edges of flexible screens attached respectively to the 15 lower rail of the lower sash 11 and the upper rail of the upper sash 10. The roller (not shown) for the lower screen 15 is preferably arranged below the sill 16, a slot 16¹ being provided therein for this purpose, while the 20 roller for the upper screen may similarly be located above the window head.

When the guide grooves 16¹ are arranged as shown in Figure 6, it is not necessary to provide clearance grooves in the side edges of the stiles 25 of the sliding sashes as this would be inconvenient when the sashes are formed of angle section bars. It will be evident that it is not necessary for the guide grooves 16¹ to extend the full height of the window frame.

In the construction shown in Figure 6, the guides for the sliding sashes are formed by vertical metal bars 23, 24 and 25 the bar 23 being welded or otherwise permanently secured in position, while the guide bars 24 and 25 35 are detachable.

Figure 7 is a view similar to Figures 6 and shows a modification in which the guide grooves 16¹ for the side edges of the flywire screen 15 are formed in the guide bar 24, the latter for 40 this purpose being of channel-shape in cross section. The free end of the screen is secured to a metal strip 26 the ends of which also project into the guide grooves 16¹ and this metal strip is secured to the sash 11 a packing 45 strip 27 being interposed. It will be evident that screens attached to the upper and lower sashes may have their edges received in the same guide grooves and that this construction is equally applicable to wooden frame windows.

When it is not convenient to arrange the winding roller 17 with its periphery substantially tangential to the unwound strip of the screen 15, a guide roller (not shown) may be arranged in such position and the winding 50 roller may then be arranged parallel thereto in any conveniently accessible position.

Having now fully described and ascertained my said invention and the manner in which it is to be performed, I declare that what I claim is:—

1. A window comprising a frame provided 5 with at least two glazed sashes arranged in different planes, one at least of said sashes being slidable whereby it may be moved behind or in front of the other sash and a flexible screen of flywire or the like mounted on a 10 self-winding roller and connected to one end of the slidable sash, and characterised in that the edges of the flexible screen are received in guide grooves disposed parallel to the sashes and arranged in a plane located intermediate 15 the plane of the inner face of the inner sash and the plane of the outer face of the outer sash.

2. A window comprising a frame provided with a slidable sash arranged between inner and outer guides and having a flexible screen 20 attached to one end thereof, said screen being mounted on a self-winding roller and characterised in that the edges of the flexible screen are received in guide grooves disposed parallel to and located between the said inner and 25 outer guides for the slidable sash.

3. A window according to Claim 1 or 2 wherein means forming said guide grooves for the screen project from the bottom of each guide groove for the slidable sash, and the 30 stiles of said sash are provided with clearance grooves for said guide forming means.

4. A window according to Claim 1 or 2 wherein said guide grooves for the flexible screen are formed in the bottoms of the guide 35 grooves for the slidable sash.

5. A window according to Claim 1 wherein said guide grooves for the flexible screen are formed in guide members arranged between and separating the said sashes. 40

6. A window according to Claim 5 wherein the free end of the flexible screen is attached to a guide strip secured to the sash and having its ends projecting into said guide grooves 45 for the screen.

7. A window according to any preceding claim wherein said flexible screen extends from the slidable sash to said roller through a slot in the window frame. 50

8. A window according to any of Claims 1 to 6 wherein the slidable sash is movable vertically to and from a sill or like member at the bottom of the window opening and said roller is arranged below the sill or the like, the latter being formed with a slot through 55 which the flexible screen extends.

9. A window according to Claim 8 wherein a guard flange extends upwardly from the sill or the like in advance of the slot therein and is receivable in a groove in the lower end of the sash.

10. A window according to Claim 8 or 9 wherein said roller is rotatively mounted in a box or casing having means for discharging water therefrom.

11. A window according to Claim 7, 8, 9 or 10 including a detachable cover which is removable to provide access to the roller.

12. A window according to any of Claims 1 to 6 inclusive, wherein said roller is arranged in a box, casing or the like fitted to the top of a sill or other like member at the bottom of the window opening, said box, casing or the like being provided with a slot through which the screen extends.

13. A window according to Claim 12 wherein the top of said box, casing or the like is provided at the outer side of said slot with an upstanding flange which is receivable within a groove in the bottom of the lower rail of the slidable sash.

14. A window according to Claim 12 or 13 wherein said roller is provided at each end with an axial recess accommodating supporting brackets or like supporting means.

15. A window according to any preceding claim wherein the free end of the flexible screen

is detachably secured within a groove in the adjacent rail or stile of the slidable sash.

16. A window according to Claim 15 wherein said free end of the flexible screen is detachably connected to the sash substantially as described with reference to Figure 2 of the drawings.

17. A sliding sash window constructed and arranged substantially as described with reference to Figures 1 to 3 of the drawings.

18. A sliding sash window constructed and arranged substantially as described with reference to Figures 4 and 5 of the drawings.

19. A sliding sash window constructed and arranged substantially as described with reference to Figure 6 of the drawings.

20. A sliding sash window constructed and arranged substantially as described with reference to Figure 7 of the drawings.

Dated this 22nd day of November, 1944.

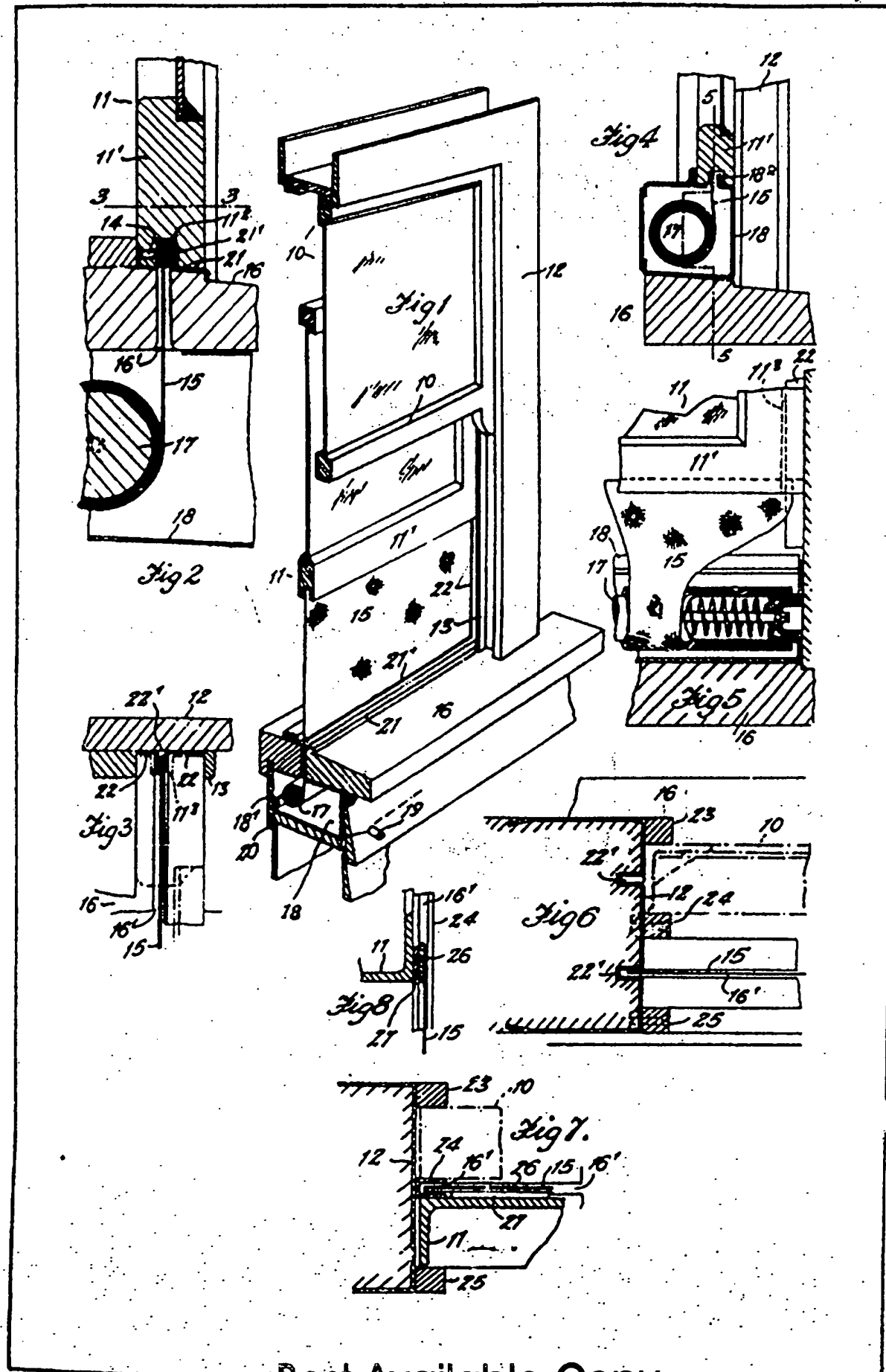
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